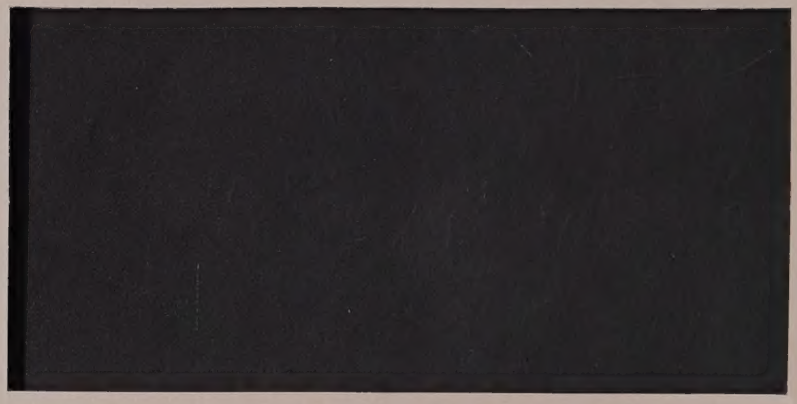
OPERATOR'S GUIDE

GILSON



FC-80K
MICRO
FRACTIONATOR

The Model FC-80K is shipped with one disposable collection plate, two polypropylene test tube racks (C), and one tube retainer bar (D). Also included is a tube-size gauge for selecting the correct size tubes from those which you may have in stock. We have found that some brands of test tubes vary in size so much that the large tubes will not fit properly in the polypropylene rack. Kimble and Corning manufacture borosilicate culture tubes, which have sufficiently close tolerances for use on the Micro Fractionator. These tubes can be obtained from your local glassware dealer (Kimble #73000; Corning #99445).

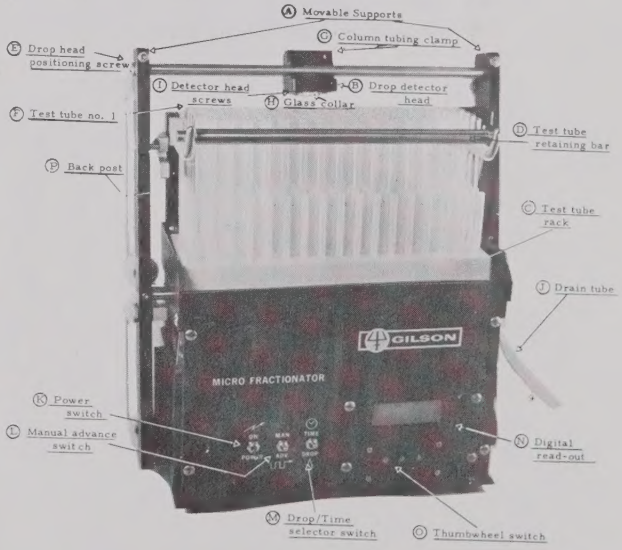
The FC-80K can be operated as a drop counting or time Fractionator. The drop detector and timer are built into the Fractionator.

Remove the items from their carton and remove the packing material from the Fractionator. Inspect the indexing head and head drive cables for shipping damage. If either of the cables are very loose, they may have become unthreaded from one or more plastic pulleys.

When connecting power to the Fractionator, be certain that the power cord is plugged into a grounded outlet. The green wire in the power cord and the round pin on the plug is chassis ground.

The only necessary controls are three toggle switches (K, L, M) and a thumbwheel switch (O). The toggle switch (M) selects either time or drop counting operation. The center switch labeled MAN-ADV (L) is used to manually advance the indexing head one tube at a time. The switch (K) is the main power switch. The three digit thumbwheel switch (O) is used to set the desired number of drops or time interval. The elapsed time or drops are displayed on the electronic counter (N). The rear panel contains the 115V 60 Hz auxiliary power outlet, socket for the detector head (5-pin connector), and the event marker (4-pin connector).

OPERATION:



To prepare the unit for operation, push the movable supports (A), which holds the indexing head, toward the rear until it engages the hook latch. In this position the indexing head (B) can be slid along the bars on which it runs. Enough force is required to overcome the friction of the friction clutch drive. The white polypropylene test tube rack (C) should be placed on the black plastic pan and pushed as far toward the rear as it will go. It is recommended that the test tube rack be checked to see that the test tubes are seated properly in the rack (not raised high enough to obstruct the movement of the indexing head). Also, the stainless steel "rolling pin" shaped rod (D) should be in place leaning against the front row of test tubes. The purpose of this rod is to keep the test tubes pushed against each other so that they form straight rows.

Select the mode of operation, drop counting or time. In time position, the counter counts in 0.1 minute increments. Thus, if a time setting of 11.4 minutes is desired, set the thumbwheel switch to 114. In drop count position, the counter counts each drop. If a setting of 100 drops is desired, set the thumbwheel switch to 100.

Attach the column effluent tubing to the detector head (B) so that the tip is 3 to 6 mm below the clamp (G) on the drop detector head. When connecting the tubing, check to make sure that the effluent tubing is sufficiently long to follow the travel of the indexing head across the Fractionator. Tube # 1 is the one in the left rear position and tube # 80 is in the right rear position. The indexing head is moved forward and backward from left to right. AN INFRARED LIGHT SOURCE IS USED IN THE DROP DETECTOR. THEREFORE THE LIGHT FROM THE LAMP IS NOT VISIBLE.

Lamp operation can be checked by passing an opaque object such as an Allen wrench through the light beam to see if the detector is operable.

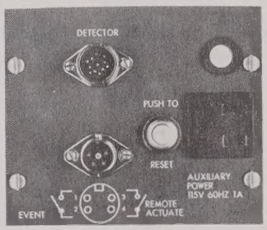
With the movable support pushed to the rear and held in place by the hook latch, turn on the main power. The indexing head may run toward the right position. If so, let it run until the drive motor

stops. Then turn off the power switch and manually push the indexing head from the right side to the stop on the left side and release the latch hook. The Fractionator will begin operation when the power switch is turned on.

When all 80 tubes have been filled the indexing head is positioned over a drain funnel (J) and power is turned off. To reset the Fractionator to tube #1 for collecting in another rack turn off the power switch, remove the filled rack, push the movable indexing head support (A) back until it latches.

Manually push the indexing head to the left as far as it will go, insert another rack of tubes, release the latch, and turn on the power switch. If for any reason the collection is terminated before the end of the rack, pushing the movable indexing head support to the rear and latching it causes the motor to operate until the driving cam is positioned properly to locate the indexing head over the rear tube (tube #1 in row #1). By moving the indexing head to the left to the stop and releasing the latch, the indexing head is positioned over tube #1.

If it is desired to collect fewer than 80 samples the indexing head can be positioned one or two rows ahead of the desired starting tube, and by means of the manual advance toggle switch, advance it to the tube into which you wish to begin collection. If the indexing head is started on an even numbered row it will move forward on that row and return back on the same row. Therefore, you need to advance it manually from 1 or 2 rows before the desired starting tube.



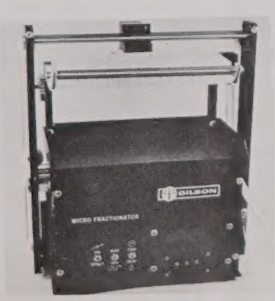
There are two drain tubes (J) located on the Micro Fractionator. One is located on the black Polypropylene pan which collects accidental spillage. The other is located at the right rear of the Fractionator and is used to divert the column output after the last tube is filled. Also, the Fractionator turns itself off and removes power from the auxiliary outlet after the last tube is filled. The auxiliary outlet can be used for connecting pumps, stirrers, etc; providing they do not draw more than 1 ampere.

This unit may be used in cold rooms, at temperatures down to 1°C (34°F). A heater (to eliminate condensation) is built into the circuitry which operates as long as the Fractionator is plugged in whether the power switch is on or not. The Micro-Fractionator should be plugged in all the time when it is left in a cold room. If it is to be inoperative for extended periods of time, it is advisable to remove the unit from the cold room.

The 4 pin socket on the rear of the panel (the mating connector is Switchcraft 10AL4F) provides a SWITCH CLOSURE event marker pulse (pins 1 and 2) each time the indexing head moves from one tube to the next. Also, a switch closure across pins 3 and 4 can be used to remotely actuate the movement of the indexing head. The duration of the switch closure must be within the range of 0.1 to 0.4 sec.

The Gilson disposable collection plate can be used to collect eighty 2 ml samples. The plate consists of a Polypropylene block with 80 cavities numbered so as to be able to identify samples after collection is complete. The collection plate can be mounted on the Micro-Fractionator without any modification. The protrusions on the ends of the plate rest on the two arms of the Fractionator where you would place the tube retaining bar if you were collecting in test tubes. A small projection on the left front edge of the plate provides an easy way to identify the front edge so that the order of collection corresponds with the serial order of the sample cavity numbers.

The collection plate is sufficiently low in cost that it is economically more practical to dispose of the plates than to wash them. However, since they are made of Polypropylene, if desired they can be autoclaved (up to 115°C) and washed by glassware washing methods.



Due to its small size and low cost, the Micro Fractionator makes possible a unique approach to multiple column fraction collection. Any number of Slave Micro Fractionators (Model SFC-80K) can be synchronized by the Model FC-80K (via event marker). This system has the advantage that the effluent from each column is collected in its own separate rack of test tubes and 80 fractions can be collected from each column. See Fractionator brochure for further information.

GILSON MEDICAL ELECTRONICS, INC.

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EUROPEAN MANUFACTURING PLANT

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August 1975

TROUBLE SHOOTING THE MICRO-FRACTIONATOR

PROBLEM	POSSIBLE CAUSE	SOLUTION
Unit works on "TIME" but not on "DROP" setting.	Tubing not lined up properly in clamp (G).	Loosen clamp and realign tubing. Tubing should extend 3 to 6 mm below the bottom edge of the clamp.
	Drop detector head not detecting drops.	Insert an opaque object into the detection area of the head. If no response, replace detector head (B). To take off head, remove two screws (I) and unplug head from back of unit.
Collection begins in Row #2 instead of Row #1.	Head not pushed all the way to the left.	Turn power switch (K) off, push movable supports (A) back into latched position and push head all the way to the left.
	Drop head positioning screw needs adjusting.	Back off "Drop Head Positioning Screw"(E) to allow head to be moved farther to the left. Retighten lock nut after adjusting screw.
Drop head will not advance from Row #1 to Row #2 (repeats tube 1-5)	Movable supports out of alignment.	To align movable supports (A), remove test tube rack, latch head assembly so it is in a collection position, insert a thin straight item (such as a 12" ruler) between the posts (P) on the back of the collection area and the movable supports. Push the movable supports back until they make contact with the item inserted. Both movable supports must touch the ruler simultaneously. If they don't, twist (gently) the movable supports so they will both make contact at the same time.
	Excess pressure on upper sliders.	Remove Drop Detector head from Head Mounting Block and clean surfaces where these two parts join together. (Saline Solution Samples have a tendency to build up crystals between these surfaces causing excessive pressure on the sliders.)
Rapid multiple counting in "DROP" mode.	Tubing inserted too far into drop detector head.	Check to be sure tube extends only 3 to 6 mm below clamp (G).
	I. D. of tubing too large.	Forming drops are large and interrupt light path prior to falling. Movement of a forming drop can cause multiple counting.
Machine completely dead.	Unit not plugged in...wall outlet dead.	Check power cord...Test wall outlet to be sure there is power.
	Circuit breaker tripped.	Reset circuit breaker on rear of machine (push in button). If circuit breaker trips quickly again, have machine checked for internal short circuit.
Digit won't light or unit counts erratically.	Faulty digital counter or display.	Contact factory for repair instructions and replacement parts.

(continued)

PROBLEM	POSSIBLE CAUSE	SOLUTION
Glass sleeve (H) broken in drop head.		Unit will still function, but possiblity exists that something may smudge either the light source or the photocell.. Should this happen, the unit will not function properly. Replacement glass sleeves are available from the factory.

NOTE: The horizontal rods on which the drop detector head moves should be periodically cleaned, using a cloth moistened with alcohol. DO NOT use any grease or petroleum products on these rods. Petroleum based products can cause swelling of the plastic and as a result could hinder the movement of the drop head.

If there is a problem that is not covered above, please call your local Gilson Representative or the factory. Repair parts may be ordered directly from the factory.

This latest version of the Gilson Micro Fractionator is manufactured with the printed circuit boards and each individual digital display capable of being unplugged and removed for repairs or replacement should the need arise. Replacement boards and displays are available from the factory.

PRODUCTS MANUFACTURED BY GILSON MEDICAL ELECTRONICS, INC. ARE GUARANTEED AGAINST DEFECT IN MATERIAL AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM DATE OF SHIPMENT (excluding lamps).

FC-80K REPLACEMENT PARTS

#26054 Glass sleeve for drop head (pkg. of 6)
#26085 Bar, Front tube retainer
#26100 Rack, test tube #207 (pkg. of 6)
#26107 Plate, Disposable Collection (pkg. of 20)
#26170 Display, Digital, TIL-306 (one digit)
#26195 Connector, 10AL4F (event mating)
#2683 TYPE II Drop Detector Head for FC-80K

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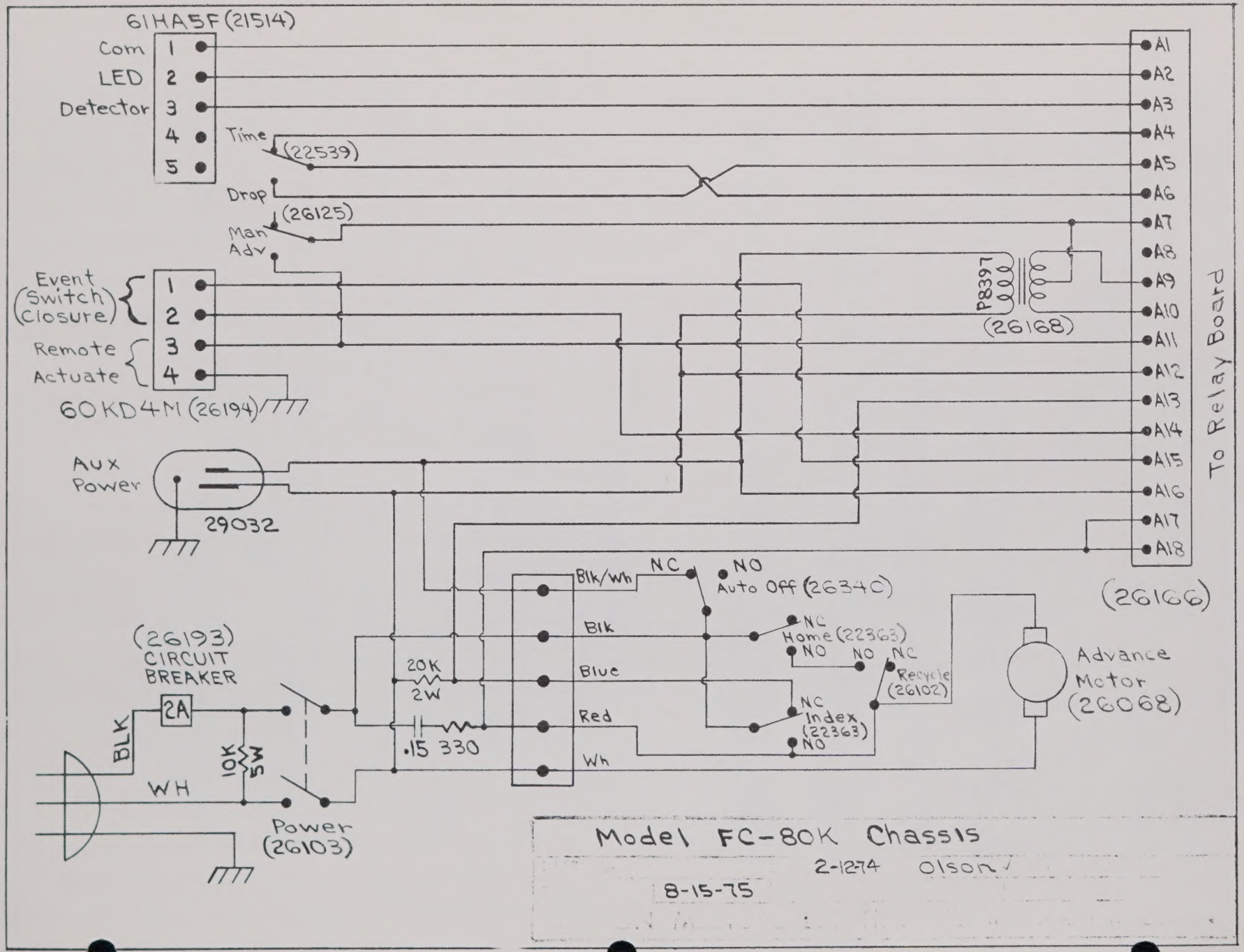
August, 1975


61HA5F (21514)
Com
LED
Detector
1
2
3
4
5
Time
(22539)
Drop
(26125)
Man Adv
Event (Switch Closure)
Remote Actuate
60KD4M (26194)
P8397
(26168)
A1
A2
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A4
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A6
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A16
A17
A18
To Relay Board
(26166)
Aux Power
29032
Blk/Wh
NC
NO
Auto Off (26340)
Blk
NC
Home (22363)
NO
NO
NC
Recycle (26102)
Blue
20K
2W
Red
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NC
Index (22363)
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Wh
Advance Motor (26068)
(26193)
CIRCUIT BREAKER
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BLK
WH
10K
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Power (26103)
Model FC-80K Chassis
2-1274 Olson
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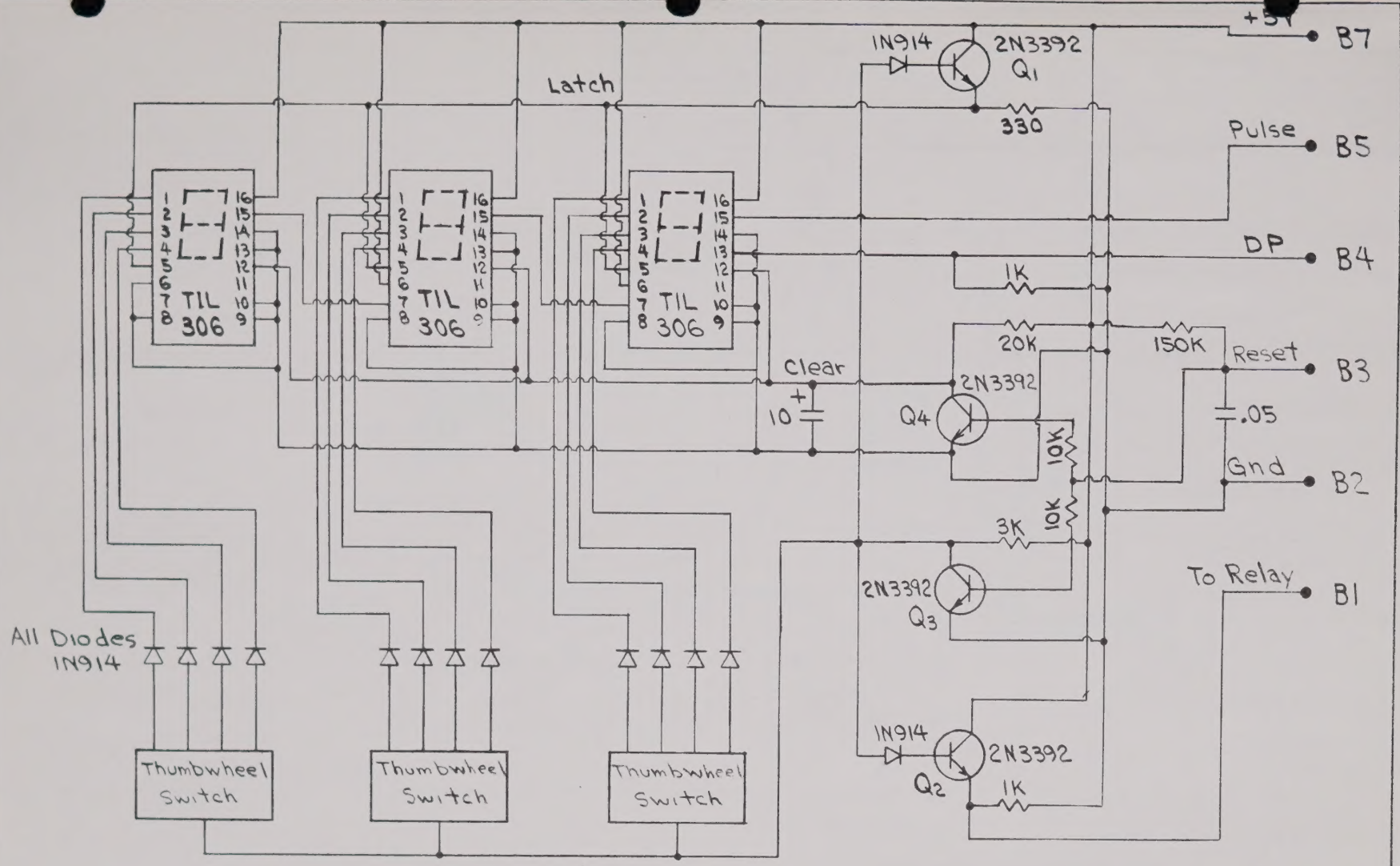
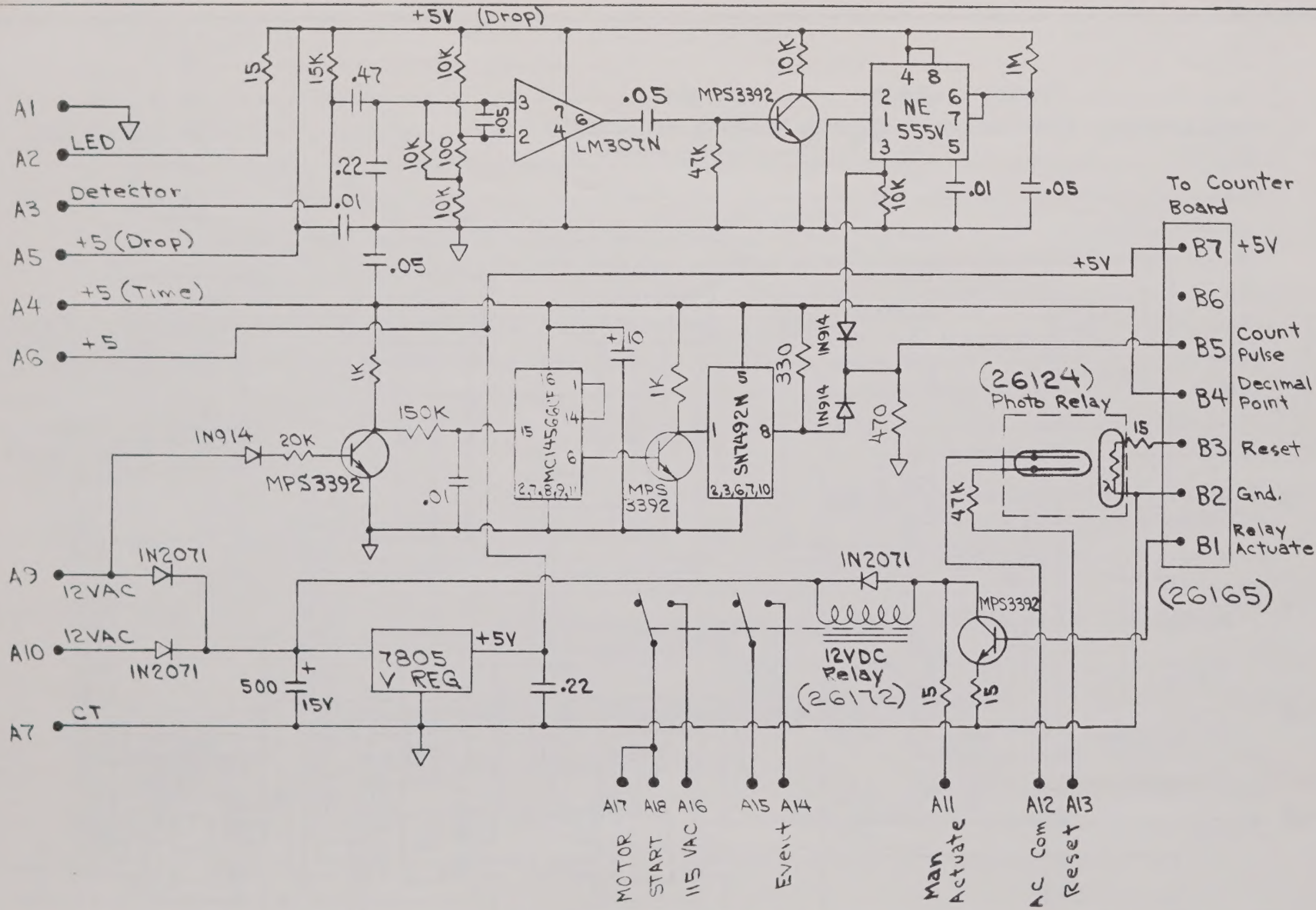


Counter Board for "H" & "K" Model Counters

26160 2-11-74 Olson

OLSON MEDICAL



Relay Board for Model "K" Counter				
PART No. 26162	DATE 2-11-74	Olson	APP.	
	4-1-74	11-1-74	1-3-75	8-15-75

MP MASTER
MA36019